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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|------------------------------|------------------------|
| 10/527,295 | 08/15/2005 | Olga Timcenko | 502388-850 | 2339 |
| 7590 09/04/2007 Pitney Hardin 7 Times Square New York, NY 10036-7311 | | | EXAMINER YANG, ANDREW GUS | |
| | | | ART UNIT 2628 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/527,295 | TIMCENKO, OLGA | |
| | Examiner | Art Unit | |
| | Andrew Yang | 2628 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed, after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2005 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4-5, 9, 11, 13, 16, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Anderson et al. (U.S. PGPUB 20020196250).

With respect to claim 1, Anderson et al. disclose a method of generating a computer readable model of a geometrical object constructed from a plurality of interconnectable construction elements (102 in Fig. 2A, paragraph 19, lines 3-5, paragraph 21, lines 16-27), wherein each construction element has a number of connection elements for connecting the construction element with another construction element (paragraph 20, lines 5-12, paragraph 26, lines 5-6), comprising encoding a first and a second one of the plurality of construction elements as corresponding first and second data structures (paragraph 26, lines 1-3), each representing the connection elements of the corresponding construction element (paragraph 37, lines 10-20), and each of the connection elements having associated with it one of a plurality of predetermined connection types (paragraph 37, lines 16-18); determining a first connection element of the first construction element and a second connection element

of the second construction element located in a predetermined proximity of each other (paragraph 20, lines 12-17, paragraph 21, lines 1-5); and retrieving connectivity information of the corresponding connection types of the first and second connection elements indicative of whether the first and second connection elements provide a connection between the first and the second construction element (paragraph 21, lines 26-27).

With respect to claim 4, Anderson et al. disclose the method of claim 1, characterized in that each of the respective data structures further represents a number of grids relative to the corresponding construction element (top of construction elements 102 in Fig. 2A), each grid having a number of grid points (connectors of construction elements); and each of the connection elements of the construction element is associated with one of the grid points and has a corresponding connection type (connection information, paragraph 21, lines 26-27).

With respect to claim 5, Anderson et al. disclose the method of claim 4, characterized in that each of the grids has at least one grid edge and the method further comprises providing a combination table including a resulting connection type for each pair of connection types (see rationale for rejection of step 1 of claim 3); detecting if a first grid of the first construction element is placed in an edge to edge extension of a second grid of the second construction element, a first edge of the first grid being aligned with a second edge of the second grid (two center construction elements stacked form a lengthwise edge to edge connection in Fig. 2A); for a first connection element of the first grid identifying a corresponding second connection element of the

second grid (paragraph 20, lines 3-6); retrieving a resulting connection type of a combination of the first and second connection elements from the combination table (see rationale for rejection of step 3 of claim 3); and assigning the retrieved resulting connection type to the first and second connection elements (paragraph 20, lines 6-11). By obtaining the identity and connections of a construction element, it is inherent that a connection type must be assigned.

With respect to claim 9, Anderson et al. disclose the method of claim 1, characterized in that each of the connection elements further has an associated direction. The connection elements are pointed up as shown by the connectors in Fig. 2A.

With respect to claim 11, Anderson et al. disclose the method of claim 1, characterized in that the step of determining a first connection element of the first construction element and a second connection element of the second construction element located in a predetermined proximity of each other further comprises determining the first and second connection elements from a predetermined subset of connection elements (paragraph 20, lines 3-6).

With respect to claim 13, Anderson et al. disclose a system for executing the method of claim 1 (100 in Fig. 1); see rationale for rejection of claim 1.

With respect to claim 16, Anderson et al. disclose a method according to claim 1 wherein each of said steps is performed by a computer program running on a computer (paragraph 21, lines 16-27); see rationale for rejection of claim 1.

With respect to claim 17, Anderson et al. disclose a computer program product comprising program code means stored on a computer readable medium for implementing the method of claim 1 (paragraph 21, lines 16-27); see rationale for rejection of claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3, 6-8, 10, 12, and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson et al. (U.S. PG PUB 20020196250).

With respect to claim 2, Anderson et al. disclose the method of claim 1. It is noted that Anderson et al. do not explicitly teach providing a connection table including connectivity information of pairs of the connection types; and the step of retrieving connectivity information comprises retrieving the connectivity information from the connection table. However, Anderson et al. disclose storing connectivity information (paragraph 37, lines 14-20) and retrieving said information (paragraph 21, lines 26-27). OFFICIAL NOTICE is taken that it is well known to store data in tables. Therefore, it would have been obvious for Anderson et al. to store and retrieve connectivity information from tables because this would provide an efficient method for organizing, storing, and loading the data.

With respect to claim 3, Anderson et al. disclose the method of claim 1, further comprising determining a first and a second connection element that are positioned in a predetermined geometric relationship to each other (paragraph 20, lines 12-17); and assigning the retrieved resulting connection type to at least a resulting connection element (paragraph 20, lines 6-11). By obtaining the identity and connections of a construction element, it is inherent that a connection type must be assigned. It is noted that Anderson et al. do not explicitly teach providing a combination table including a resulting connection type for each of a predetermined set of pairs of connection types and retrieving a resulting connection type of the first and second connection elements from the combination table (paragraph 21, lines 26-27). However, Anderson et al. disclose storing connectivity information (paragraph 37, lines 14-20) and retrieving said information (paragraph 21, lines 26-27). OFFICIAL NOTICE is taken that it is well known to store data in tables. Therefore, it would have been obvious for Anderson et al. to provide a combination table for storing and retrieving connectivity information because this would provide an efficient method for organizing, storing, and loading the data.

With respect to claim 6, Anderson et al. disclose the method of claim 4. It is note that Anderson et al. do not explicitly teach that each of the respective data structures further represents a bounding volume of the corresponding construction element; and each of the grids corresponds to a surface of the bounding volume. OFFICIAL NOTICE is taken that bounding volumes are well known in the art. Therefore, it would have been obvious for Anderson et al. to represent bounding volumes of construction elements,

including the grids corresponding to the surface of the bounding volume, because bounding volumes would be used to simplify collision detection calculations.

With respect to claim 7, Anderson et al. disclose the method of claim 6, characterized in that the method further comprises encoding respective positions of the first and second construction element with respect to a common volume reference grid, the first and second grid of the corresponding first and second construction elements corresponding to respective first and second planes of the volume reference grid; the grid points of the first and second grids corresponding to respective reference grid points of the volume reference grid (see Fig. 2A); and detecting whether the first and second grids correspond to a common plane of the volume reference grid and whether at least a first grid point of the first grid is located in the same reference grid point as a second grid point of the second grid (paragraph 20, lines 3-11). The center construction elements are positioned on a common reference grid represented by the large flat construction element in Fig. 2A.

With respect to claim 8, Anderson et al. disclose the method of claim 7, characterized in that the method further comprises identifying all pairs of coinciding grid points of the first grid and the second grid (paragraph 20, lines 3-6); for each of the identified pairs of grid points retrieving connectivity information from the connectivity table (paragraph 21, lines 26-27); and accepting a connection between the first and second construction elements, if at least one pair of grid points corresponds to a valid connection (as shown in Fig. 2A). It is noted that Anderson et al. do not explicitly teach refusing connection between the first and second construction elements, if at least one

pair of grid points corresponds to an invalid connection. OFFICIAL NOTICE is taken that it is well known to refuse joining objects, or connection elements if they do not fit.

Therefore, it would have been obvious for Anderson to refuse a connection between connection elements in the case of an invalid connection, because this would prevent attempting to display an irregular object.

With respect to claim 10, Anderson et al. disclose the method of claim 1. It is noted that Anderson et al. do not explicitly teach that the connectivity information comprises an indicator for each pair of connection types indicating one of a predetermined group of connectivity types, the group consisting of a valid connection which provides a connection between a corresponding pair of connection elements, an invalid connection which prevents a connection between a corresponding pair of connection elements, and an indifferent connection. OFFICIAL NOTICE is taken that it is well known to assign indicators for invalid data, or invalid connections for connection elements. Therefore, it would have been obvious for Anderson et al. to include an indicator for valid and invalid connections because this would facilitate in visualizing potential invalid connections.

With respect to claim 12, Anderson et al. disclose the method of claim 11. It is noted that Anderson et al. do not explicitly teach that each of the respective data structures further represents a bounding volume of the corresponding construction element; the method further comprises detecting an intersection of the bounding volumes of the first and second construction elements; and the step of determining the first and second connection elements from a predetermined subset of connection

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elements comprises determining the first and second connection elements from connection elements comprised in the determined intersection. OFFICIAL NOTICE is taken that bounding volumes are well known in the art. Therefore, it would have been obvious for Anderson et al. to represent bounding volumes of construction elements, including the grids corresponding to the surface of the bounding volume, because bounding volumes would be used to simplify collision detection calculations. OFFICIAL NOTICE is taken that it is well known to determine intersections of bounding volumes. Therefore, it would have been obvious for Anderson et al. to determine an intersection of the bounding volumes associated with the construction elements because this would efficiently determine if further connection calculations would be required.

With respect to claim 14, Anderson et al. disclose the system of claim 13 for executed the method of claim 2; see rationale for rejection of claim 2.

With respect to claim 15, Anderson et al. disclose the system of claim 13 for executed the method of step 1 of claim 3; see rationale for rejection of claim 3.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,889,176 to Buttolo et al. for a method of storing edge connectivity information using tables.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Yang whose telephone number is (571) 272-5514. The examiner can normally be reached on 8:30-5 M-F.

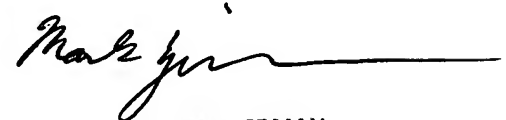
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman can be reached on (571) 272-7653. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AGY

8/28/07


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